REMARKS

In the Office Action, claim 23 is objected to for being dependent on a rejected base claim, but would be allowable if rewritten in independent form. Claims 17-22 and 24-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,798,622 to Hirai et al. ("Hirai") in view of U.S. Patent No. 6,934,167 to Jang et al. ("Jang") and U.S. Patent No. 6,231,013 to Jaenker ("Jaenker"). Claims 22, 28, and 29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hirai in view of Jang, Jaenker and JP 07-046864 to Kurakawa et al. ("Kurakawa").

In this response, no amendments have been made. Claims 17-29 are pending. The claims are presented as a courtesy to the Examiner.

Reconsideration of the application in view of the following remarks is respectfully requested.

Indication of Allowable Subject Matter in claim 23:

Applicants would like to thank the Examiner for the indication that claim 23 contains allowable subject matter and would be allowed if rewritten in independent form. However, in view of the following remarks, it is respectfully submitted that all of the pending claims are in condition for allowance.

Rejections to claims 17-22 and 24-29 under 35 U.S.C. §103(a):

Claims 17-22 and 24-27 are rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,798,622 to Hirai et al. ("Hirai") in view of U.S. Patent No. 6,934,167 to Jang et al. ("Jang") and U.S. Patent No. 6,231,013 to Jaenker ("Jaenker").

Hirai describes a noncontacting transfer apparatus for transferring power and control signals to a load in a mobile or rotatable unit. The apparatus includes a split-type transformer, a rectifier and a smoothing circuit. Hirai describes implementations of the apparatus to include machine tools and robots.

Jang describes a contactless electrical energy transmission system. The described system couples a power source to a load through a transformer and a resonant circuit of a rectifier. Jang

mentions underwater and mining applications as possible uses of contactless electrical energy transmission systems ("CEETS") in describing the background of CEETS.

Jaenker describes an airfoil member with piezoelectric stack actuators. The piezoelectric actuators described by Jaenker actuate flaps located on an edge of the airfoil member. However, Jaenker does not describe any electrical systems that provide power or control signals to the actuators.

Independent claim 17 recites a device for contactless electrical power transmission wherein "at least portions of the inductive transformer, frequency generator and at least one actuator control element are disposed in an area of a rotor shaft and a rotor head of a rotary-wing aircraft." It is respectfully submitted that Hirai, Jang and Jaenker, alone or in combination, do not teach or suggest this feature. Hirai describes a noncontacting transfer apparatus for use in machine tools and robots, and Jang describes a contactless energy transmission solution. The Examiner concedes that Hirai and Jang do not disclose this feature, and attempts to cure these deficiencies with Jaenker, stating that "Jaenker teaches rotor blades and actuators on a [sic] rotary-wing aircrafts." However, Jaenker does not disclose any portions of an inductive transformer, frequency generator or actuator disposed in an area of a rotor shaft or rotor head of an aircraft. Instead, Jaenker merely describes an airfoil member with piezoelectric actuators that manipulate flaps on an edge of the member. Jaenker does not describes any device for providing electrical control or power signals to the actuators and does not even mention a rotor head or rotor shaft.

In addition to failing to teach or suggest all of the elements of claim 17, Applicants further submit that the combination of the references in the specific manner urged by the Examiner constitutes improper hindsight reconstruction.

The system described in Hirai is only directed to implementations for use in machine tools and robots. Jang briefly mentions possible mining and underwater applications. Neither reference contemplates implementing either system in a rotary-wing aircraft, nor is there any suggestion that the systems described in the references would be able to withstand the extreme conditions and extremely high safety requirements necessary to be implemented in a rotary-wing aircraft. The rotor head and shaft of a rotary wing aircraft is exposed to all kinds of extreme temperature and weather conditions as well as harsh acceleration forces. None of these types of

conditions were contemplated in the designs of the systems in Jang and Hirai. Lastly, Jaenker does not describe any type of control or power system associated with the mechanics of actuating the piezoelectric actuators. The Examiner's assertion that it would have been obvious to combine the references with Jaenker "because it use [sic] actuator systems which are compact, light in weight and not subject to a mechanical tilting displacement or jamming of the actuating components, since the actuating movement is generated from within the solid state bodies" is not a reason to combine references, but is merely a description of the airfoil member described by Jaenker.

Withdrawal of the rejections to independent claim 17, and dependent claims 18-22 and 24-27 under 35 U.S.C. §103(a) is respectfully requested.

Rejection to claim 22 under 35 U.S.C. §103(a):

Claim 22 is rejected under 35 U.S.C. §103(a) as being unpatentable over Hirai in view of Jang, Jaenker and JP 07-046864 to Kurakawa et al. ("Kurakawa").

Kurakawa describes a driver for a piezoelectric actuator for a precision microscope. The device describes a driver that is isolated from the load via a photocoupler. Further, the system measures error and controls the actuator through charging and discharging of the actuator.

Applicants respectfully submit that Hirai, Jang, and Jaenker do not render claim 22 obvious for the reasons discussed above, and Kurakawa does not cure the deficiencies of Hirai, Jang, and Jaenker.

Withdrawal of the rejection to claim 22 under 35 U.S.C. §103(a) is respectfully requested.

Rejections to claims 28 and 29 under 35 U.S.C. §103(a):

Claims 28 and 29 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hirai in view of Jang, Jaenker and Kurakawa.

Independent claim 18 recites a method for providing power to a capacitive actuator, comprising the step of "generating a higher-frequency alternating current from a direct voltage

using a frequency generator disposed in the stationary system, the higher-frequency alternating current having an amplitude independent of a phase angle and of an amplitude of a reverse voltage." This is performed, for example, by matching the generator frequency with the resonant frequency of the series-resonant circuit. *See* Specification, ¶[0051].

It is respectfully submitted that Hirai, Jang, Jaenker, and Kurakawa, alone or in combination, do not disclose this feature. The Examiner asserts that this feature is disclosed by Hirai, Figure 35 and element 361_2. Although element 361_2 of Figure 35 is a high-frequency power generator, there is no indication that the amplitude of the generated signal is "independent of a phase angle and of an amplitude of a reverse voltage." Hirai merely indicates that the high-power frequency power generator 361_2 is controlled by speed signal S12, and that the high-frequency power generator 361_2 converts the output of direct current power source 361_1. *See* Hirai, col. 26, lines 1-12. Further, Jang, Jaenker, and Kurakawa do not cure this deficiency of Hirai.

Withdrawal of the rejection to claim 28 under 35 U.S.C. §103(a) is respectfully requested.

Independent claim 29 recites features similar to those discussed above with respect to claim 28. Thus, it is respectfully submitted that for at least the reasons discussed above, Hirai, Jang, Jaenker, and Kurakawa do not render claim 29 obvious.

Withdrawal of the rejection to claim 29 under 35 U.S.C. §103(a) is respectfully requested.

CONCLUSION

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

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